



Psychological Literacy: Its Nature, Acquisition, and Application



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Introduction

Psychological literacy (PL) is defined as the integrated set of disciplinary attitudes, knowledge, values, beliefs, and skills which can be acquired through training and adaptively used to solve real world life and community problems (Cranney & Dunn, 2011). It is seen as an important characteristic of citizens in a democratic society (McGovern et al., 2010). The present research explores whether PL has the proposed integrative nature which can improve with exposure to and engagement in the discipline and can predict academic performance.

In previous research we assessed scores on three questionnaires assessing psychological attitudes (PAS), knowledge (PK), and beliefs (PM) among 492 students who varied in major status and year in school (Allen et al., 2013). Questionnaire performance formed a single dimension in a factor analysis. Factor scores reflecting standardized PL scores increased as a function of year in school and status as a psychology major, minor or neither. We additionally reported between- and within-subjects increases in standardized PL scores from the beginning to the end of an Introductory and advanced psychology courses. The findings support theoretical assumptions of PL.

The present study builds on our previous research by expanding the battery of assessments to include measures of understanding of psychological research (PR), ethics (PE), and applications/careers (PAC). The study was run on two samples collected to assess the impact on PL scores of exposure and engagement in the discipline (Sample 1) and academic performance in an Introductory Psychology course (Sample 2).

Method

Participants

Sample 1 included 306 undergraduate psychology students (61% female, M age = 24.37 years, sd = 7.3 years) from a range of psychology classes. A total of 42% of the participants were freshmen, 27% were sophomores / juniors (combined to ensure sufficient numbers in each cell) and 21% were seniors. Forty-one percent of participants were psychology majors or minors. Participants had taken on average 3.21 previous Psychology courses (sd = 3.0).

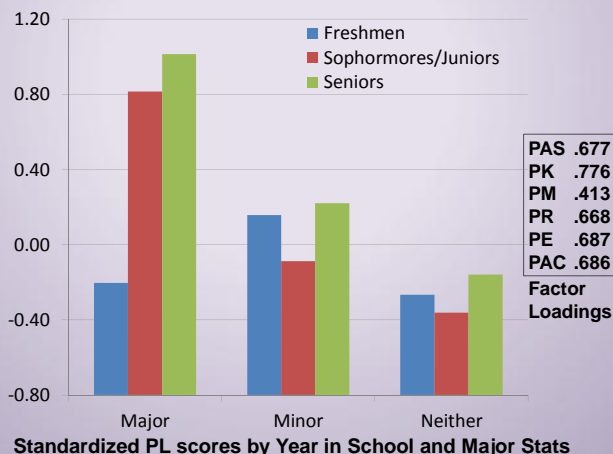
Sample 2 was collected from a larger sample of 288 Introductory Psychology students during a different semester than Sample 1. Of the 288 students, 112 (67% female, 93% freshmen or sophomores, M = 21.5 years, sd = 6.4 years) completed the questionnaires at the beginning and end of the semester. They were enrolled in classes taught by one of seven faculty members in 10 sections of the course, which represented a majority of sections on the main campus of the university that semester.

Procedure

A questionnaire was prepared that included the six measures (see box) and a series of demographics and class engagement questions. After completing the latter, the former measures were completed in randomized order. Participants received research credit or extra credit for their participation.

Psychological Literacy Assessments

- PAS (Psychology as a Science):** 15-item Likert scale assessing attitudes towards scientific psychology (Friedrich, 1996).
- PK (Psychology Knowledge):** 25-item MC assessment of general psychology knowledge (Thompson & Zamboanga, 2004).
- PM (Psychology Misconceptions):** 16-item Likert-scaled measure of student misconceptions (Thompson & Zamboanga, 2004).
- PR (Psychology Research):** 10-item MC assessment of students' understanding of research and statistical issues.
- PE (Psychology Ethics):** 15-item MC assessment of students' grasp of professional obligations of psychologists (Zuccherro, 2008).
- PAC (Psychology Applications & Careers):** 12-item MC assessment of student knowledge about professional opportunities and applications in the discipline.



		PL Pretest	PL Post-test	PL Change
Final Grade	Pearson Correlation	.422	.413	-.050
	Sig. (2-tailed) p <	.001	.001	<i>ns</i>
	N	94	103	91
PL Pretest	Pearson Correlation		.702	-.273
	Sig. (2-tailed) p <		.001	.01
	N		97	97
PL Post-test	Pearson Correlation			.494
	Sig. (2-tailed) p <			.001
	N			97

Correlations Between Final Grades and Composite PL Pretest and Post-test scores.

Results

For Sample 1, Cronbach alphas (α) ranged from .56 (PM) to .82 (PK) and performance formed a single dimension in a factor analysis accounting for 44% of the data (see factor loadings). A factor score (M = 0, sd = 1.00) was computed for each participant (range = -2.67 to 3.37) and used as the dependent variable in a 3 (Major Status) by 3 (Year in School). Major Status, $F(2, 294) = 13.17, p < .01$, Year in School $F(2, 294) = 3.66, p < .05$, and the interaction $F(4, 294) = 2.88, p < .05$, were each significant. PL scores were higher for majors than minors and for minors than neither and they increased over year in school, but only for majors.

For Sample 2, a factor score for each participant's performance at a given testing period was computed using the factor loadings derived from the other 176 Introductory Psychology students who completed the assessment only once. A t -test for correlated samples on pre-test/post-test standardized PL scores found that they were significantly higher at the end than the beginning of the semester (Pretest $M = .34, sd = .06$; Post-test $M = .35, sd = .07, t(96) = 2.04, p < .05$). Correlations between final grades and PL Pretest, Post-test and Change scores revealed that grades were predicted by both assessments and that PL Change was associated with lower Pretest but higher Post-test PL scores. A multiple regression on final grade revealed that two significant predictors, $R^2 = .27, F(2, 88) = 16.27, p < .001$, which included PL Pretest scores ($\beta = -.46, p < .001$) and Posttest level of engagement in the course ($\beta = .24, p < .05$).

Discussion

The study extends previous work by further demonstrating that psychological literacy is integrated, trainable and predictive of academic performance. Six assessments measuring a range of disciplinary attitudes, knowledge, values, beliefs, and skills showed an underlying commonality predicted by accounts of PL. Majors had higher standardized PL scores than those not as engaged and only they improved over time in school. Students' standardized PL scores also increased (albeit minimally) in an Intro Psychology class, final grade in which was related to initial PL scores along with student engagement in the class. Future research is exploring relations between quantitative PL assessments and qualitative ones.

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